(12)特許協力条約に基づいて公開された国際出願

(19) 世界知的所有権機関
国際事務局

(43) 国際公開日
2005年6月2日 (02.06.2005)

PCT

(10) 国際公開番号
WO 2005/050177 A1

(51) 国際特許分類⁷: G01N 21/35, 22/00

(21) 国際出願番号: PCT/JP2004/017361

(22) 国際出願日: 2004年11月22日 (22.11.2004)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:
特願2003-391201 2003年11月20日 (20.11.2003) JP
特願2004-311458 2004年10月26日 (26.10.2004) JP

(71) 出願人 (米国を除く全ての指定国について): 独立行政法人産業技術総合研究所 (NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY) [JP/JP]; 〒1008921 東京都千代田区霞が関1丁目3番1号 Tokyo (JP).

(72) 発明者; および

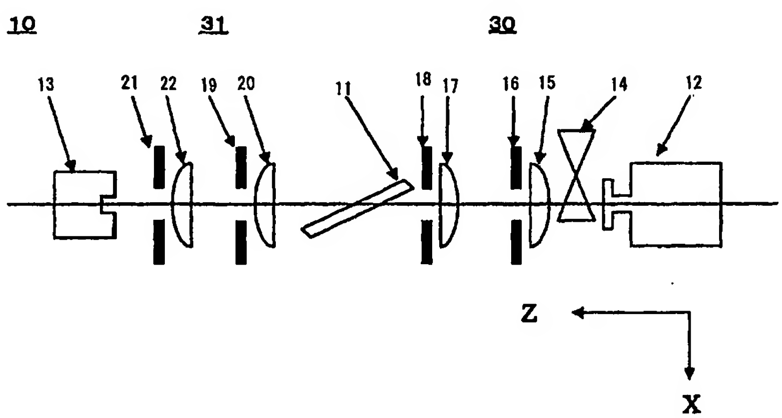
(75) 発明者/出願人 (米国についてのみ): 川手 悦男 (KAWATE, Etsuo) [JP/JP]; 〒3058568 茨城県つくば市梅園1-1-1 中央第2 独立行政法人産業技術総合研究所内 Ibaraki (JP).

(81) 指定国 (表示のない限り、全ての種類の国内保護が可能): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[続葉有]

(54) Title: METHOD AND INSTRUMENT FOR MEASURING COMPLEX DIELECTRIC CONSTANT OF SAMPLE BY OPTICAL SPECTRUM MEASUREMENT

(54) 発明の名称: 光学スペクトルの測定による試料の複素誘電率測定方法及び測定装置



$$\frac{2nd\sqrt{1-\left(\sin\theta/_{n}\right)^{2}}}{\lambda}=N \quad \text{(Eq. 7)}$$

(57) Abstract: A substrate like a parallel flat plate satisfies the inference condition when the wavelength (λ) of the incident light satisfies [Eq. 7] (where d is the thickness, n is the refractive index, θ is the angle of incidence, and N is an integer). In this case, in the transmission spectrum, the lights strengthen each other and a peak of the fringe appears; in the reflection spectrum, the lights weaken each other and a bottom of the fringe appears. At wave lengths (frequencies) near the wavelength (λ), as the angle of incidence is increased, the transmittance approaches zero and the reflectance approaches 1. Increase of the thickness by placing a thin film on the substrate is similar to increase of the thickness of the substrate in [Eq. 7], and therefore the wavelength satisfying the interference condition shifts to the longer wavelength (low frequency) side. Owing to these three effects, the spectrum of the ratio of the optical spectrum of the system composed of the substrate and the thin film to the optical (transmission or reflection) spectrum of only the substrate at a large angle of incidence is a spectrum having a structure where the maximum value is adjacent to the minimum value. By analyzing the relative transmission or reflection spectrum, the complex dielectric constant of the thin film can be determined.

[続葉有]

WO 2005/050177 A1